DOCUMENT RESUME

ED 030 420 JC 690 192

By-Krupka, John G.
A Community College Remedial Program: A Description and Evaluation.
Pub Date Apr 69
Note-58p.
EDRS Price MF-$0.50 HC-$3.00
Descriptors-*English Programs, *Junior Colleges, *Remedial Mathematics, *Remedial Programs, *Remedial Reading
Identifiers-Pennsylvania

This joint project of Northampton Area Community College and Lehigh University examines the college's General Studies Program for the student scoring below the twelfth percentile on the ACT math or English tests. Depending on his score, he must take the math or English or both; his other hours are in the regular courses. (Others, in special cases, are urged to take the remedial program.) It combines programmed self-study, individual instruction, and a Programmed Materials Learning Lab in English, arithmetic, or algebra. Instructors are available to help the student during his six weekly lab hours. Details of the lab and of the curriculum are given. The college staff judges the program's effectiveness by subsequent course success, pre-post ACT score gain, GPA, dropout vs. retention rate and achievement in the program. Using these five factors, the writer evaluates the program according to (1) gain in ACT score, (2) teacher success in judging student gain, (3) predictive value of ACT scores, (4) student success one year after the program, (5) GPA after first semester, (6) opinions on the program's success by all ten staff members involved in it. The conclusions are (1) percentage of enrollment in the program is low, (2) dropout rate is low, (3) seriously deficient students stay in school three semesters, (4) they are most likely to drop out. The sixteen opinions collected from the ten staff members and ten recommendations are included. (HH)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

ED030420

A COMMUNITY COLLEGE REMEDIAL PROGRAM - A DESCRIPTION AND EVALUATION

John G. Krupka

JC 690 192

UNIVERSITY OF CALIF.
LOS ANGELES

MAY 27 1969

CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION

P R E F A C E

This report was written as a cooperative project between Northampton County Area Community College and Lehigh University. It serves as partial fulfillment as the field study report for Education 494. My thanks go to the administration of the community college, especially Dean Donald Hagen for his understanding of the time needed for this report and then to Dr. Merle Tate of Lehigh for his constant help and guidance without which this report would not have been written.

John G. Krupka

April, 1969

Table of Contents

	Pages
Description of the Program	1 - 8
Limitations	2
Recent research findings	3, 4, 5
Table I - Enrollment in the G. S. Math Program	6
Table II - Enrollment in the G. S. English Program	7
English and Mathematics courses - Entrance Requirements	8
Evaluation of the Program	8 - 20
Success and Failure Factors	9
Limitations	9, 10, 11, 12
Procedures to be used	10, 11
Pre-and-Post ACT	12
Table III Pre-and-Post Means by ACT Section	12
Table IV Pre-and-Post ACT Scores of G. S. Mathematics vs. G. S. English Students	13
Table V G. S. Math vs. non-G. S. Math	14
Table VI G. S. English vs. non-G. S. English	15
Table VII Pre-and-Post ACT Math Score Frequency Intervals	16
Table VIII Pre-and-Post ACT English Score Frequency Intervals	16

	Pages
Table IX G. S. Drop-outs vs. non-drop-outs	18
G. S. Teacher Questionnaire	18
Table X Instructor-grouped Students	19
Table XI Pre-and-Post G. S. Enrollments based on Instructor Classification	20
Analysis of ACT Scores and Final Grades	21 - 26
Math 301 - Mean ACT scores by final grade and r_{xy}	21 - 22
English 301 - Mean ACT scores by final grade and r_{xy}	22 - 23
English 101 - Mean ACT scores by final grade and r_{xy}	23
Math 101 - Mean ACT scores by final grade and r_{xy}	23
Math 120 - Mean ACT scores by final grade and r_{xy}	23, 24
The ACT Examination	24, 25
r_{xy} of Mean ACT score by grade levels	26
The G. S. Program Graduates	26 - 32
Table XII Pre-and-Post ACT scores of students Enrolled in G. S. Writing Laboratory	27
Table XIII G. S. 1968 G.P.A.	28
Table XIV Semester Hours of Credit of 1968 General Studies Student	28
Table XV College vs. G. S. Enrollment	29
Table XVI General Studies Drop-outs	30
Table XVII - 1968 Attrition and Reasons	31
Table XVIII - G. S. Enrollment vs. Total College Enrollment	31

	Pages
Table XIX Drop-outs at N.C.A.C.C. by semester	32
Subsequent Course Success of G. S. Program Graduates	32 - 36
Table XX Success In Ma 301	33
Table XXI Success in Ma 101	33
Conclusions	33, 34
Table XXII Success in English 301	35
Table XXIII Success in English 101	35
Table XXIV G.P.A. of Withdrawal Students vs. Remaining Students	36
Conclusions	36, 37
Faculty Opinion of the Program	37 - 42
What the Program Does	38
What the Program Should Be Doing	38, 39
What Can Be Done to Improve the Program	39, 41
Evaluation of Materials and Criteria	41, 42
Implications	42, 43
Recommendations	43, 44
Bibliography	45
Appendix	46

Description of the Program

Northampton County Area Community College, Bethlehem, Pennsylvania, like almost all public junior and community colleges, has a remedial program for those students who have deficiencies in mathematics and/or English. Based on national percentiles and other criteria, Northampton places students into this remedial program, called the General Studies Program, who score below the twelfth percentile on the mathematics and English sections of the ACT examination. Depending on the individual scores, the student is required to enroll in General Studies mathematics or General Studies English, or both. For example, a student who is only weak in mathematics enrolls in General Studies mathematics for three semester hours and the remaining 9 or 12 hours in the regular college curriculum of his choice. Students who are near the cut-off levels are encouraged to enroll in the remedial program. Students who have been away from school for awhile are also encouraged to enroll in this program. Students who are either weak in Algebra or who did not have high school algebra and need this background for subsequent mathematics courses in a particular curriculum can enroll in General Studies Algebra. So this program contains students of varied ability and varied interests. To meet this wide range of needs, the General Studies Program offers a combination of programmed self-study and individual instruction. There is the P.M.L.L. - the Programmed Materials Learning Laboratory: in which the students work by themselves, at their own speed, in either arithmetic, English, or algebra. Laboratory instructors are available for student help. The student must spend 6 hours per week in this laboratory.

Two hours per week are spent in an Application Laboratory. The Mathematics Application Laboratory, for example, is designed to review, to verify, and to apply the knowledge gained in the Learning Laboratory. Workbooks have boen designed by the mathematics department that parallel the programmed materials. In the laboratory the student works in his workbook, checks his answers, and then can seek individual help from the laboratory instructor if necessary. Both in the Learning Laboratory and in the Application Laboratory periodic achievement tests are given. The English program is similar, but the Application or Writing Laboratory is used for the students to write, correct, and analyze paragraphs and essays. Through the use of dictation equipment, the student dictates or tells his story into the machine, reviews and corrects it, and finally writes it out. The laboratory instructor works with the students as the students compose their work. After the class and upon receiving the student's paper, the instructor marks and evaluates the paper, not on the paper with a red pencil, but rather with the dictation equipment. At the next class the student receives his paper and his recording disk, goes to a recording booth and listens as the instructor corrects his work. The effectiveness of this teaching approach may be evaluated by the writer in his dissertation for his doctorate degree. In the General Studies algebra program the students learn or relearn high school algebra. At the end of a semester they take a final examination. This examination has been created by the mathematics department and if the student is successful he is then allowed to enroll in College Algebra or Finite Mathematics which require a high school algebra background. This is but a brief description of the program. The complete curriculum of the General Studies program will be found at the end of this paper.

The difficulties of creating a good remedial program and determining its value are many. One is the fact that the group that is in the program is already a special segment of the college's society. It is believed, if not expected, that more than the majority of these students will not remain at the college for more than a year. Recent research confirms this expectation. Not only is the average remedial program student deficient in one or more critical academic areas, but he may be poorly motivated, have poor study habits, have un-defined future goals, and may be attending the Community College only to stay out of the draft. The usual philosophic explanation given for continuing these remedial programs in spite of the drop-out rate, the teaching frustrations, etc., is the hope that in this academic chaff there will be some seeds that will start to develop.

Because the college is new and the General Studies Program has changed even within this short time, recommendations will be listed, after the statistical analysis, on the program itself and for continued evaluation of the program. But in the long run, without the control-experiment group test approach, this program and its value will have to be judged on a personal, individual judgement. It will be, in the end, the simple belief of the teachers, students, administrators, and Board of Trustees on the value of this program that will determine whether or not the program will continue, will change, or will be terminated.

The "open-door" admission policy brings with it the necessity of remedial programs. Roueche (1) reviews twenty studies on the evaluation of remedial programs. In a national investigation of junior colleges in 1963 it was found that an increasing proportion of junior colleges full-time student body were students of low ability. Consequently the necessity arose

to provide remedial programs and to evaluate such programs. Roueche drew the following conclusions from the specific studies:

(1) a statewide survey of "Remedial English Instruction in California Public Junior Colleges" found that remedial English classes in the states public junior colleges were not sufficiently effective. The report concluded that many students failed to complete the remedial course and dropped out before entering specific curricular programs.

(2) Los Angeles City College found that most of its low-ability students did not persist in college for more than one year.

(3) In a study to evaluate programmed instruction in remedial English, Mesa College, in California, found that students receiving programmed instruction would obtain significantly higher scores on the final examinations than those enrollees not taught by the programmed method.

Based on the review of twenty studies on current research of remedial programs, Roueche concluded:

(1) Students in low-ability groups are primarily identified by standardized test scores in the 10-12 percentile range and below.

(2) results of these studies and of studies in progress reflect a less than optimistic view as to the students' subsequent educational accomplishments.

(3) there is a lack of certainty as to what the remedial programs' basic goal should be and research is needed to evaluate these programs, regardless of what the objectives might be.

Roueche and Boggs (2) discuss entrance requirements and placement criteria that are used by junior and community colleges. Such standardized tests as ACT, PSAT, SCAT, and STEP are used for both placement and prediction. The relationship between standardized tests and junior college achievement were investigated by the American College Testing Program and from data supplied by eighty-five junior colleges it was found that there was a significant positive relationship between their test to freshman grades. They summarize:

(1) a median correlation of .64 was determined to overall freshman grades.

(2) median correlations for the various sections of the placement examination were 0.62, 0.57, 0.61 and 0.61 for English, mathematics, social studies and natural science respectively.

(3) on the average, approximately 41 percent of the variance in freshman grades can be accounted for by performance on the ACT.

The authors concluded that there are few standard tests designed to meet the multiple needs of community colleges and a lack of specific data to afford full use of tests that are available.

As mentioned earlier this remedial program thus far has been a dynamic and enlarging program. Materials and methods have changed and the description here concerns the present state of the program. For background purposes, however, enrollment statistics are given here for the first year and the following summer school session.

Table I

Number and ACT Scores of Students Enrolled in General Studies Mathematics for the Three Periods, 1967-68, Summer 68, Fall 68.

	Number		
ACT Scores	1967-68	Summer 68	Fall 68
0 - 10	51	6	43
11 - 16	21	10	49
17+	2	4	34
without scores	6	4	12
Total	74	20	126
mean	8.4	11.9	12.4
range	1 → 18	1 → 22	1 → 25

Table II

Number and ACT Scores of Students Enrolled in General Studies English for the Three Periods, 1967-68, Summer 68, Fall 68

	Number		
English ACT Scores	1967-68	Summer 68	Fall 68
0 - 12	61	15	63
13 - 15	3	4	36
16+	0	2	12
without scores	3	1	5
Total	64	21	112
mean	8.6	10.6	11.2
range	2 → 21	1 → 22	1 → 22
Social Studies ACT Scores			
0 - 12	34	13	60
13 - 16	18	5	26
17+	12	3	26
without scores	3	1	5
Total	64	21	208

The ACT ranges used here correspond to the eligibility ranges used for the various mathematics and English courses. English and social studies ACT scores are both entered as both are used to determine eligibility for the English courses.

The entrance requirements at Northampton County Area Community College are as follows: (see course descriptions in Appendix).

(1) for English 101 - English I, a score of 16 or above on the English section of the ACT and a score of 17 or above on the Social Studies section

(2) for English 301 - for Communications I, 13-15 on English section of ACT and 13-16 on the Social Studies section. Hence students in General Studies English generally have scores 12 or below on both the English and Social Studies sections of the ACT examination.

(3) for Math 301 - Fundamentals of Mathematics, 11 or higher on the mathematics section of the ACT

(4) for Math 401 - Technical Math I, 15 or higher on the mathematics section of the ACT, plus 1½ units of high school algebra.

(5) for Math 101 - College Algebra and Math 120 - Finite Mathematics 17 or higher on the mathematics section of the ACT plus 1½ years of high school algebra. Hence students who score below 11 on the mathematics section of the ACT examination are enrolled in General Studies mathematics.

Evaluation of the Program

The questions asked by Northampton, and in fact asked by most schools with a remedial program, is of what value is the program?

To answer this question one must first define success or failure of the program as the institution sees it. The faculty and administration of Northampton believe that success and failure may be judged by:

1. Subsequent course success
2. Pre-post ACT gain score
3. Student grade point average
4. Holding power, drop out rate
5. Achievement and progress within the program.

The first question that is of importance, but one that cannot be answered is whether or not the students would have had equivalent subsequent college course success without the program. The only way to answer this question is to take an incoming Freshman class, identify the students who would ordinarily be enrolled in the remedial program, and then randomly divide them into two equal groups. Then assign half to the regular mathematics or English course and the other half to the remedial program followed by the regular courses. Here we could have the typical experimental-control group situation. We then could measure the difference in course success, student grade point average, drop out rate, etc. But the college will not run this true and sensible experiment. Why? Because based on national norms and research findings, such students belong in the remedial program, and the college would be neglecting its responsibility to the student and might even ruin his collegiate career if it did experiment with him. So the question will not be answered as to whether or not the student would succeed without this program. It is felt that this program will certainly not hurt the student and may, at worst, delay the date of failing or dropping out of school. Those students who fall 3 or 6 semester hours behind their fellow classmates can make this up during the summer sessions.

Using these five success-failure factors that have been established by the college, the writer will evaluate the program with the following procedures:

(1) At the end of the Fall 68 semester give the General Studies student a post ACT examination. Questions that the writer will attempt to answer are: (a) was there a gain in test scores and (b) was this gain significant?

(2) During the semester ask the application laboratory instructors to judge their students on seriousness, effort, and predicted achievement success. The question to be answered here is whether or not these instructors can differentiate between students who are making gains in achievement.

(3) Using the final grade class lists for the two English courses and three mathematics courses mentioned earlier, tabulate the final grade frequencies in each course and then compute the product-moment coefficient of correlation between ACT score and final grade. The question to be answered here is how much predictive value has the ACT scores.

(4) Investigate the subsequent course success of those students that enrolled in General Studies courses. The question to be answered is whether or not these students did have success in the regular college courses in the subject in which they were academically weak. Another question to be answered is the status of these students after a year of study.

(5) Investigate the grade point average of the Fall 68 General Studies students after their first semester of college. What was their class load and have they, as research indicates, started to drop-out of college?

(6) Question all those people at the college who directly or in-

directly are involved in this program. The questions to be answered is what does the program do, what should the program be doing, and what can be done to improve the program.

In the analysis of the pre and post ACT examination there are obvious weaknesses.

We are concentrating on a unique group for which there is no control group. Maturation has obviously occurred between the pre and post test periods. Would these students increase their test scores by just being in college and not necessarily enrolled in the General Studies program? There is also the question of what the ACT measures. Instruction in the program is in no way directed to improve the students score on this examination. Also, there is a serious question about the instrument. The ACT examination is used throughout the nation, and some community colleges are questioning the applicability of the examination to their students. In particular, does the mathematics section accurately reflect the students prior training and competence? What is the difference in test scores by a student who had high school algebra and one who has not? What is the difference in test scores between students who have had education recently and those who have been away from school for some time?

Another difficulty concerns the students attitude when he took this original placement examination during or soon after his senior year in high school. Does the student know that his performance on this test will determine whether or not he can enroll in the regular college mathematics or English courses? How seriously did he take the test? This question cannot be answered by this writer but should be investigated by the guidance personnel at the college.

The post examination was given to the Fall 68 General Studies students. They were told by the director of the program that this was part of the regular work in the program and the examination was given during final week.

Of the 208 General Studies students originally enrolled in the Fall 68 semester, 194 had taken the pre-ACT placement examination. The post examination was administered to 152 students. It is therefore assumed, since the post examination served as a portion of the semester final examination for these students, that 56 out of the original 208 either withdrew from the program or unofficially dropped out of the course. This analysis deals with the 146 students who have taken both the pre-test and post-test.

The ACT examination consists of four parts, English, mathematics, social studies, and natural science. A student's raw score for each section is transformed to a standard score. The four standard scores are then averaged to form a composite score. (A copy of the examination can be found in the appendix). Table III shows the group's pre-test mean score, post-test mean score, and the net gain in each category.

Table III

Pre-Post ACT Mean Scores and Net Gain for 152 General Studies Students.

	English	Math	Soc. St.	Nat. Sci.	Composite
pre	13.1	13.9	14.3	15.8	14.5
post	15.7	17.5	16.2	17.8	17.0
net gain	+2.6	+3.6	+1.9	+2.0	+2.5

In analyzing Table III one first can observe that in all categories there was a positive net gain. The reason of this positive gain could be

student maturation and motivation. These students took the pre-test late in their senior year in high school or immediately after during the summer. Therefore, one reason of the improvement could simply be age maturation of seven months. Motivation on the post-test should have been to a larger degree than on the pre-test because of the student's awareness of the use of the examination. The third reason could be that the student has learned something in this interval of time. Whether he learned this because of the General Studies Program of just being in a collegiate atmosphere cannot be determined. It is encouraging, though, to see an improvement.

Table IV shows the pre-test mean score, post-test mean score, net gain, z-values, and levels of significance for the General Studies mathematics and English student.

Table IV

Pre- and Post-Test Means on ACT of General Studies Students and Significance of Difference

pre-test math	post-test math	net gain	z-value	level of significance
12.4	17.5	5.1	11.6	.01
pre-test English	**post-test English**	**net gain**	**z-value**	**level of significance**
11.4	14.6	3.2	7.6	.01

This table shows that the General Studies student did improve his performance. It is interesting to note the large net gain by the mathematics students as compared to the English students. One could say that the reason for this is that the General Studies Mathematics program is more successful

than the English program. However, it could also be said that the mathematics program prepares the student better to achieve a larger net gain in the examination. Test conditioning is inferred here but again very little, if in fact anything, can be proved. It is true, however, that the mathematics section of the examination consists for the most part of arithmetic and algebra and this is what these students have been studying for a semester. This may not be true for the English section of the examination. English is not a skill-type subject.

Table V shows the pre and post test scores and net gain for those students enrolled in the General Studies mathematics course as compared to those students who are not. Many, if not all of the students not enrolled in the General Studies mathematics may be taking a regular college mathematics course.

Table V

Pre-Post Math Scores of General Studies Math Students vs. Non-General Studies Math Students and Significance of Difference.

	pre-test mean	post-test mean	net gain	level of significance
G. S. Math	12.4	17.5	+5.1	.01
Non G. S. Math	16.6	17.5	+0.9	--

This table is also encouraging with respect to the net mean gain scores. Student motivation, student preparation, and perhaps other factors could be reflected here by the difference in net gain. Regression toward the mean could be a partial explanation for the large net mean gain of the students enrolled in the math program.

Table VI shows the mean scores and the mean gains of those General Studies students enrolled in General Studies English as compared to those that are not. The scores on the English section of the ACT examination are used here.

Table VI

Pre- and Post- English Mean Scores of Students enrolled in General Studies English vs. those that are not and Significance of Difference.

	pre ACT English	post ACT English	net gain	level of significance
G. S. English	11.4	14.6	+3.2	.01
Non G. S. English	15.4	17.3	+1.9	--

There are 85 General Studies English scores and 61 non-General Studies English scores used as the basis of this table. The same analysis used for Table IV could be used here. Positive net gains are again encouraging.

Tables VII and VIII show the pre-and-post test frequencies by score levels. The different ranges are those that the college's student placement personnel use, in part, to place the student in the various curriculum and courses. The tables show the number of students in the different ranges on the basis of pre-ACT test performance as compared to the frequency after the post examination had been given. The primary reason for the inclusion of these tables is to show the change of frequencies within the placement level ranges.

Table VII

Pre-and-Post Frequency of ACT Math Scores by Placement Intervals

ACT math range	0 - 10	11 - 16	17 - 21	22+
pre-test frequency	33	34	23	4
post-test frequency	9	21	42	22

Table VIII

Pre-and-Post Frequency of ACT English and Social Studies Scores by Placement Intervals.

G. S. English ACT Range	0 - 12	13 - 15	16+
pre-test frequency	46	30	8
post-test frequency	20	24	40
G. S. Soc. St. ACT Range	0 - 12	13 - 16	17+
pre-test frequency	43	22	19
post-test frequency	29	24	31

The difference in frequencies in the mathematics pre-and-post test intervals, especially in the 0 - 10 score interval can be thought of as important. The student who does not score above 10 in ACT mathematics section is not allowed to take any of the regular mathematics courses and must take General Studies mathematics. Some instructors feel that if scoring below 11 forces the student into General Studies mathematics, then scoring 11 or greater on the post examination should release the student from the program. If this is the case, then 24 out of the 33 students in this

range can be released from the program.

It is assumed that most of the students in the 11 - 16 and 17 - 21 ranges are in the program to learn or relearn high school algebra. In looking at the pre-test and post-test frequencies in these levels there is also a good increase in frequencies in the higher levels.

The English department of the college uses an average score on the English and Social Studies sections of the examination for student placement. Students who score in the first range, 0 - 12 must take General Studies English. Students in the second range can take an English course but not English I, the normal freshman college English course. The increase in frequencies, especially in the 16+ range on the English section of the examination is notable. So again, what one can only say is that there has been a positive change in achievement on the basis of this examination and in this seven month pre-and-post test situation, both for the mathematics and English General Studies students. Whether this is caused by the program cannot be established at this time.

Table IX compares those students who did not take the post ACT examination with those that did, using the pre test scores as the basis of comparison. The assumption here is that these students who did not take the post examination will be college drop-outs. There are 146 students who completed the course and 50 drop-outs.

Table IX

Pre-test Mean ACT Scores of Students Completing Program Vs. Those That Dropped-out.

Mean Scores	pre ACT math	pre ACT English	pre ACT composite
Drop-outs	13.4	12.5	14.3
Completed	13.9	13.1	14.5

The only thing that can be said about this table is that the mean scores of those students who failed to complete the course are slightly lower than those that did complete the course. It might prove interesting to investigate student backgrounds, motivation, etc. of those students who did drop-out of this remedial program.

Midway in the fall 68 semester, on December 2, a questionnaire was sent to each of the General Studies laboratory instructors requesting them to judge their students. It was asked of the instructors to partition his class and list his students under one of these categories: - Group 1 to contain those students that show a real interest in self-improvement, those that seem to apply themselves in class, those that have good attendance and in essence, those that the instructor feels will show the greatest increase in achievement level on the post examination; Group 2 to contain those students who are not serious in their work that are not progressing as they should, the "goof-offs", those that have poor attendance and those students that the instructor feels will not show much of an increase in achievement level on the post examination; and Group 3 to consist of those students whom the instructor felt were in between or those that the instructor was not willing

or able to judge. It must be remembered that the application laboratory instructors see their students but twice a week in 50 minute periods. In totaling the students in each group it was found that Group 1 contained 77 names, Group 2 contained 60, and Group 3 had 97 names. This is a combination of the English and mathematics programs. The question that is to be answered is can the instructor determine those students who are benefiting from the program and who are learning.

Table X shows the pretest mathematics mean score of the students in each group.

Table X

Mean Pre-ACT Math Scores of Instructor Grouped Students

Group	Math mean score
1	14.3
2	10.7
3	11.9

The reason for this approach was to determine the relationship, if any, between instructor judged classification of students and pre test achievement scores. The only thing that this table may show is that the students judged "good" have a higher mean mathematics score. Perhaps the reason for this is that those students who are in the General Studies program on their own, first have higher scores, and second, are perhaps more motivated in self-improvement than the others.

Table XI shows several things. First, the instructor-judged students are divided into two groups, those enrolled in General Studies mathematics

and those enrolled in General Studies English. The frequency in each group is given, the original number of students listed in each group, the number of students completing the course (i.e. taking the post examination), and then the mean gain score is given for each group.

Table XI

Pre-and-Post Enrollment by Instructor Classification and Mean Gain Score for Math and English

G. S. Math	Group 1	Group 2	Group 3
Original Number of Students	36	25	53
Number of Students Completing Course	34	12	43
Mean gain Score in pre-post ACT Math	+4.9	+5.4	+5.1
G. S. English	Group 1	Group 2	Group 3
Original Number of Students	41	35	44
Number of Students Completing Course	37	13	40
Mean Gain Score in pre-post ACT Engl.	+3.4	+4.1	+2.6

A few things can be seen in this table. Mean gain scores between the groups indicate very little, other than the fact that the English instructors can differentiate better between their "good" students (Group 1) and their "bad students (Group 2). It can also be noted that more students in the "in-between" group (Group 3) classification have dropped-out. Perhaps the instructors placed the names of those students who had not been coming to

class, perhaps even dropped-out already, into the classification of not being able to judge or the in-between group.

In addition to the post ACT examination a final examination was given to those students enrolled in General Studies algebra who wanted to obtain credit for their work in algebra. This examination was created by the mathematics department of the college and followed the Temac programmed materials. That department also graded the examination. Out of curiousity and also with reservations on the applicability and value of the mathematics section of the ACT examination, the writer computed the Pearson's product-moment coefficient of correlation between the student's post ACT math examination scores and their score on this examination. The correlation was between 57 pairs of scores and was +0.45. Further study should be given to both the content and value of the mathematics section of the ACT examination and also this algebra final examination.

Analysis of ACT scores and Final Grades.

The next section of this paper consists of analysis of ACT scores and final grades in the two English courses and three mathematics courses. Using final grade class lists for the marking periods, Fall 67, Spring 68, Summer 68 and Fall 68, students' grades and appropriate ACT scores will be compared. Then, a follow-up study will be made of the graduates of the General Studies Program and an investigation will be made of their subsequent course success.

Using the final grade class lists for the four marking periods, Fall 67, Spring 68, Summer 68, Fall 68, and the ACT mathematics scores of those students, the following statistics were determined.

(1) The number of Math 301 - Fundamentals of mathematics courses: 12

(2) The number of final grade - ACT scores used in the analysis: 256

(3) The mean ACT math score for each grade level, where n equals the number of grades in each level:

A: 18.4 n = 23

B: 17.6 n = 46

C: 14.35 n = 80

D: 12.6 n = 67

F: 14.4 n = 33

W: 14.0 n = 7

(4) Using Pearson's product-moment coefficient of correlation, with the ACT grades and a 4 to 0 scale for the final grades A through F, r_{xy} was computed to be +0.34. Omitting the F category, the coefficient of correlation was to +0.44.

The data used for this computation will be found in the Appendix.

Using the final grade class lists for the four marking periods and using the students' average ACT English and social studies grade, the following statistics were determined.

(1) The number of English 301 - Communications courses: 9

(2) The number of final grade ACT scores used in the analysis: 210

(3) The mean ACT English - social studies score for each grade level, where n equals the number of grades in each level:

A: 17.4 n = 10

B: 15.7 n = 39

C: 14.4 n = 97

D: 13.9 n = 36

F: 16.4 n = 17

W: 15.7 n = 11

(4) Using Pearson's product moment coefficient of correlation, with ACT grades compared to final grade, (4-0) range, r_{xy} was computed to be +0.11.

The data used for this computation will also be found in the Appendix.

Similar statistics were gathered for English I they are:

(1) The number of English I courses: 31

(2) The number of final grade ACT scores used in the analysis: 582

(3) The mean ACT score for each grade were:

A: 22.2 n = 38

B: 20.25 n = 80

C: 18.4 n = 186

D: 18.4 n = 132

F: 17.3 n = 120

W: 16.5 n = 26

(4) The coefficient of correlation between final grade and ACT score was +0.33.

The data are in the Appendix.

For the course Math 101 - College Algebra, eleven courses were used to obtain data. There were 12 A's, 24 B's, 29 C's, 33 D's, and 39 F's for a total of 137 final grades. The mean ACT math grade for each category was 24.2, 22.2, 20.5, 18.6, and 19.0 respectively. Using the same method of correlation as used before between ACT math grade and final grade for the course, the coefficient of correlation is 0.41.

The data are to be found in Appendix.

For the course Math 120 - Finite Mathematics, eight courses were used to obtain data. There were 13 A's, 24 B's, 26 C's, 28 D's, and 26 F's,

for a total of 117 final grades. The mean ACT math grade for each category was 20.6, 20.5, 19.0, 18.2, and 17.1 respectively. Correlating each pair of scores, the coefficient of correlation between ACT math score and final course grade is +0.28.

The data can be found in the Appendix.

The frequency distributions and the computed coefficients of correlation certainly show the very weak relationship between ACT score and final course grade.

To use this test as the sole placement factor would certainly be fool-hardy. American College Testing Program[4] states the following regarding this test:

(1) "It is clear that the ACT tests have useful validity and that the tests in combination with high school grades are generally superior to the use of either tests or grades."

and

(2) "The median predictive validity of the individual ACT tests ranges from 0.37 to 0.50" to student grade point average

and

(3) "The median correlation between unscaled high school average with college G.P.A. was equal to 0.604.

The ACT program, when used completely, will for individual colleges, establish predicted academic performance statistics, the local norms, and grade expectancies in specific courses. Whether Northampton is taking advantage of this service, or whether there is insufficient data, has not been determined at this time.

The ACT Technical report (4) describes their test in this manner:

(1) "The fundamental idea underlying development of the four tests (ACT) is that the best way to predict success in college is to measure as directly as possible the abilities the student will have in his college work."

and

(2) "In terms of construction, the tests might best be regarded as simply measures of academic potential which rely partly on a student's innate abilities and partly on his current knowledge, but which emphasize his ability to use both."

Therefore, as far as Northampton's policy and this writer's findings are concerned, the ACT is but one factor in student placement and should be investigated further. If the ACT is such a weak predictor, why then cannot students who score below these cut-off levels be allowed to take these English and mathematics courses?

The preceding tables and the coefficients of correlation concern the relationship between ACT test score and final grade in the course. Because, obviously, a student's final course grade is dependent on so many factors, there is not, and really should not be a predictive relationship between ACT score and final course grade. The amount of covariance between ACT score and final grade can be seen when coefficients of correlation are made between the mean ACT scores and the corresponding grades.

For Ma 301, the number pairs used in the computation are (18.4, 4), (17.6, 3), (14.35, 2), (12.6, 1) and (14.4, 0). Pearson's product moment coefficient is +0.90. Omitting the F category (14.4, 0), the coefficient is +0.98. This high coefficient arises because of the elimination of

variation in the grade categories.

For English 301 - Communications, the coefficient of correlation is +0.42 with the F grades included and +0.97 without the F grades.

For English I, the coefficient of correlation between the mean ACT scores and the final grades is +0.95 with the F grades and +0.94 without the F grades.

This information should prove valuable to the guidance and counseling personnel at the college. For the General Studies student, those who do score below the cut-off levels, theoretically their corresponding achievement will be below that of their fellow students.

The General Studies Program Graduates.

The next section of this report deals with the General Studies program graduates for the periods, Fall 67, Spring 68, and Summer 68. It must be remembered that a great number of these students have not been forced into this program but are there to make up deficiencies, primarily algebra. A far better follow-up would be of the past semester's General Studies students as they have gone through the changed, and perhaps, more effective program.

The General Studies Writing Laboratory, like the mathematics application laboratory, allows the student to practice what he has learned in the Learning Laboratory. In the Fall 68 semester the program had two English instructors each in charge of separate laboratories. One instructor used the dictation equipment as mentioned earlier in the general description of the entire program, and the second instructor taught writing in the traditional manner, without the use of the dictation equipment. An analysis of the pre-and-post ACT English scores for these two groups

of students may be valuable. Only those students who have both pre-and-post ACT scores will be entered in the study. Some students did not have the pre-ACT examination and some did not take the post examination.

Mrs. A. who used the dictation equipment taught 5 classes. Mrs. B., teaching traditionally, taught 3 classes. The following table shows the number of students used in each tabulation, the pre-and-post English ACT means, and mean net gain for each instructor.

Table XII

Pre-Post ACT English Mean Scores by Application Laboratory Instructor.

Instructor	N	pre-test mean	post-test mean	mean net gain
A	52	12.8	15.7	+2.9
B	34	10.7	12.9	+2.2

From this table it is clear that Mrs. A had a group that scored higher on the pre-test and also that her students had a higher mean net gain. Whether this is due to the instructor and/or the method cannot be determined at this time. There were 33 students originally enrolled who could not be included in this comparison.

An investigation of the Fall 68 semester's General Studies student's regular college work should prove interesting. Of the 208 students originally enrolled in the program, 18 had no credits at the end of the semester. It is therefore concluded that these students withdrew from the college. Of the remaining students, 190 had taken an average of 9 regular college credits and had a grade point average of 1.5. The following table shows the frequency of these students by grade levels.

Table XIII

General Studies Students Fall '68 GPA Grade Levels (A = 4.00)

G.P.A.	F	D	C	B	A
Frequency	47	70	64	8	1

There were 79 students remaining at the end of the semester who were enrolled only in General Studies mathematics (arithmetic or algebra). They were enrolled in an average of 11 hours of regular college courses and their average grade point average was 1.6. There were 60 students remaining who were enrolled only in General Studies English. They were enrolled in an average of 9.5 hours of regular college courses and their average grade point average was 1.4. There were 46 students remaining who were enrolled in both mathematics and English General Studies. They took an average of 6 hours of regular college courses and had an average grade point average of 1.3. The following table includes these statistics:

Table XIV

Semester hours credit and G.P.A. of General Studies Students.

	Math only	English only	Math and English
Freq.	79	60	46
mean number of hours	11	9.5	6
mean G.P.A.	1.6	1.4	1.3

These statistics reflect the make-up of the enrollment in the General

Studies program. Many of the students enrolled only in the General Studies math are those students who do not have to be in the program but are enrolled in order to learn or relearn high school algebra. The enrollment in the General Studies English program also contains students who do not have to be in the program and are there to prepare themselves to take the regular English course. Many of the students enrolled in both General Studies courses are those that were required to enroll in them. Hence the average G.P.A. for those three categories, from 1.6, 1.4, and to 1.3 reflect the abilities of the students enrolled.

Other factors that should be considered in a total view of the General Studies program is the proportion of the student body that takes General Studies courses and also the drop-out rate at the college, General Studies students versus non-General Studies students.

Table XV shows the total enrollment at the college for the spring and fall semesters, the General Studies enrollment, and then the percent of the student body in the General Studies program. Total enrollment figures are used as part-time students are also in the General Studies enrollment. Those figures come from the College's "Service to the Community", Annual Report, January, 1969.

Table XV

College and General Studies Enrollment.

Semester	Total Enrollment	G. S. Enrollment	Percent of Total
Fall 67	884)		
	)	110[1]	13%[2]
Spring 68	855)		
Fall 68	1442	208	14%

1. Although there were 94 students enrolled in General Studies mathematics and 85 students enrolled in General Studies English for the 1967-68 year and 1968 summer session, many of these students were enrolled in both courses, therefore constituting 110 students. See Tables I and II.
2. The average of the Fall 67 and Spring 68 enrollments was used to compute the percent of the total.

Table XVI

General Studies Drop-outs for 1967-1968.

G. S. Enrollment		Number of Drop-outs	Percent
Math only:	60	23	38
English only:	45	18	40
Math & English:	44	23	52

Additional data gathered from the guidance and counseling department at Northampton sheds some light on the drop-out of the college. An attrition study, spring to fall of 1968 was made. One hundred and four students made up the study. The following table shows the percent of students dropping-out and their reasons for doing so.

Table XVII

1968 Attrition and Reasons

Reason	Percent
academic failure	43
transfer	23
military service	17
employment	16
academic problem	13
financial	7
family	5

The following table shows the number and percent of students who are required to enroll in the remedial program.

Table XVIII

Required Enrollment in General Studies Program.

Semester	Total Enrollment	G. S. Enrollment	Number of G.S. Students below 12th %tile Math	English	M %	E %
Fall 67	884)					
	)	110	51	61	6%	7%
Spring 68	855)					
Fall 68	1442	208	43	63	3%	4%
Spring 69	1348	--	--	--	--	--

A third factor to consider is the drop-out rate of the college. From data supplied by the guidance personnel at the college the following table

shows the full time enrollment at the college, the number of drop-outs, and the percentage.

Table XIX

Drop-outs per semester of Northampton County Area Community College Students.

Semester	Full time Enrollment	Number of Drop-outs	Percent
Fall 67	403	78	19%
Spring 68	356	104	29%
Fall 68	924	190	21%

The term "drop-out" is quite complex and could be misleading. It contains such meanings as failing-out, going into the service, getting married, and just plain withdrawal from the college. For the 67-68 school year, 182 students left the college. It might prove interesting to see how many of those students were enrolled in one or both of the General Studies courses. Table XIX shows the total number of drop-outs and percentage in the General Studies Program.

Subsequent Course Success of General Studies Program Graduates.

Of the 110 students enrolled in the General Studies program during the 1967-68 school year, the following discussion concerns subsequent course success.

Using student records supplied by the Dean of Student Personnel Services, the following information was gathered: since the fall 67 semester, 35 of these students took the course, Math 301 - Fundamentals of Mathematics. Their mean final grade in the course was 1.23 on an A = 4.00 basis. The table shows this grade frequency.

Table XX

General Studies Math Program Graduates and Subsequent Final Grades in Ma 301.

Grade	A	B	C	D	F
freq.	0	1	12	16	6
mean ACT Math score	-	15.0	8.25	8.88	9.83

Three students subsequently took Math 101 - College Algebra. Their ACT math scores were 16, 18 and 7 and their final grades were F, D, F respectively. Eleven students subsequently took the course Ma 120 - Finite Mathematics. Their mean final grade was 0.91. Table XXI shows the final grades, the frequency at each grade, and the mean ACT math score for each grade.

Table XXI

General Studies Math Program Graduates and Subsequent Final Grades in Ma 101.

Grade	A	B	C	D	F
freq.	0	1	3	2	5
mean ACT Math score	-	2.0	13.0	13.0	10.0

In trying to draw conclusions from the preceding tables it must be remembered that first, these students went through a remedial program that was different than the one that exists today. Second, it must be

remembered that this group is a small one and that many of the students have yet to take a mathematics course. Some conclusions that can be drawn, however, are:

(1) that 83% (29 out of 35 in Table XX) of those that have subsequently taken the minimum mathematics course have passed the course.

(2) that 73% (36 out of 49) of those that have subsequently taken a mathematics course have passed the course.

(3) that in a comparison of these students with non-General Studies students in a final grade in Ma 301 versus ACT math score analysis, these students had a lower ACT math mean score (9.00) as compared to (15.25) and a lower mean final grade, (1.23) as compared to (1.84).

(4) 31% have withdrawn from the college

(5) 36% have yet to take a methematics course

(6) 52% of those students who remain have yet to take a mathematics course.

In the analysis of the 1967-68 General Studies English program's students subsequent course success, the ACT score that will be reported is the average of the English and Social studies section grades, and if, say the average is 16.5, this will be rounded upwards to 17. The mean final grade score of the 17 students who subsequently took English 301 - Communications was 1.76. Table XXII shows the grade frequency and mean ACT score in each category.

Table XXII

General Studies English Program Students Final Grades in English 301.

Grade	A	B	C	D	F
freq.	0	2	9	6	0
mean ACT score	-	15.0	9.44	8.0	-

There were 41 students who subsequently took English 101. The mean final grade score was 1.07. Table XXIII shows the final grade frequency and mean ACT score for each category.

Table XXIII

General Studies English Students Final Grades in English 101

Grade	A	B	C	D	F
freq.	0	1	14	13	13
mean ACT score	-	10.0	11.5	13.23	8.92

From the preceding two tables it has been established that 58 students have subsequently taken an English course. Of those students who remain on campus from the original group, only 5 have not taken an English course. However, as of January, 1968, 42 have withdrawn from the college.

It might prove interesting to compare the cumulative grade point average to date of those students in each course who have remained at the college with those who have withdrawn. The next table shows the G.P.A. of these students in each program.

Table XXIV

G.P.A. - General Studies Students that withdraw versus those that do not.

Course	Mean G.P.A. of withdrawal students	Mean G.P.A. of remaining students
G. S. Math	1.16	1.92
G. S. English	0.91	1.87

From the preceding three tables some conclusions can be developed

(1) For those G. S. English program graduates in the 1967-68 year, 27% enrolled in English 301 and 65% enrolled in English 101.

(2) 100% of those students who took English 301 passed the course.

(3) 68% of those students who took English 101 passed the course.

(4) In a comparison of these students with non-General Studies students in a final grade in Engl. 301 versus mean ACT score analysis, these students had a lower mean ACT score (9.59) as compared to (14.89) and a lower final grade, (1.76) as compared to (1.94).

(5) In a comparison of these students with non General Studies students in a final grade in English 101 versus mean ACT score analysis, these students had a lower mean ACT score (11.19) as compared to (18.69) and a lower final grade, (1.00) as compared to (1.61).

The following conclusions can be drawn from an analysis of the data in the preceding tables:

(1) the percentage of the college's enrollment in the remedial

English and mathematics courses can be considered low. The percentage of students required to enroll in these courses is also low.

(2) The drop-out rate of the college can be considered low. One reason for this is the liberal probation-good standing-dismissal procedures used at the college.

(3) More than half of the students who have serious deficiencies in mathematics and/or English have stayed in school for three semesters.

(4) A student who has these deficiencies has 2.39 as many chances dropping-out of the college than students who do not have these deficiencies.

Faculty Opinion of the Program.

An important part of any evaluation is the opinion of those people who are directly or indirectly involved in what is to be evaluated. The following is a summary of the responses to a questionnaire concerning the program. These opinions were gathered in November, 1968. The 10 people involved were the application laboratory instructors and the programmed materials learning laboratory instructors and the director of the program.

A Summary of

Faculty Opinion of the General Studies Program

1. Question: Do you consider the program worthwhile?

   Response: Ten people who are either now or in the past connected directly with the program have the opinion that the program is worthwhile. There were no negative responses.

II. Question: What does the General Studies Program do?

Responses: raises students competency in math and/or English to acceptable level,

provides the opportunity to the student to learn and receive credit, for one and a half years of high school algebra.

prepares students to enter the regular freshman English and Math courses,

gives these students a real chance to pass regular college subjects.

makes it possible for students to do remedial work at their own rate.

III. Question: Is the program a success or failure?

Responses: both (2) (Note: (2) indicates the frequency of the response).

somewhere between a success and failure

success for those that apply themselves

success (3)

IV. Question: What should the program be doing?

Responses: What it is doing (3)

Should try to improve the methods of imparting knowledge.

In addition to what it is doing, to provide remedial work in specific areas of English and Math to students who encounter difficulty in their regular college classes, and are referred by their instructors.

In addition to preparing the students for regular Math and English courses, the program should prepare the student for college in general.

Look for improvement and more effective procedures and methods.

V. Question: What can be done to improve the program?

Responses: Constant evaluation of the program through pre- and post-tests and follow-up studies of the students (2)

Orientation of both students and instructors at the start of the semester to the policy and procedures of all facets of the program.

More coordination between Learning Laboratory and Application Laboratory personnel.

Elimination of the wasted time in the Application Laboratory at the beginning of each semester.

Improve the laboratory conditions as they are too crowded and too noisy.

Obtain more classroom space for the program.

Increase number of staff for Learning Laboratory

Try to improve the attitudes of the students towards the program.

VI. Question: Are there any changes that should be made in the policy and procedures of the Mathematics Learning Laboratory?

Responses: either obtain more space or schedule less students per period.

more frequent testing in the algebra work.

increase the work space because of the immaturity of the student and to cut down the possibility of cheating.

VII. Question: Are there any changes that should be made in the policy and procedures of the English Learning Laboratory?

Responses: a study to determine the proper and most effective amount of time for the student to spend in the Laboratory.

periodic tests to verify student progress and understanding.

given the premise that the programmed material is useful in English, the laboratory seems to be functioning; however, there is probably need for more staff and more testing of the students.

VIII. Question: Are there any changes that should be made in the policy and procedures of the Mathematics Application Laboratory?

Responses: schedule the students to two labs per week but have two or three days of separation between them rather than the present one.

if a laboratory room was available, it might be better to keep the students workbooks there and thus enable the laboratory instructor to correct them; an alternate method would be to have the workbooks in loose-leaf binder so that these pages could be easily carried back and forth for correcting by the instructor.

orientation at the beginning of the semester and smaller class sizes.

IX. Question: Are there any changes that should be made in the policy and procedures of the English Application Laboratory?

Responses: we need a constant noise source to promote the use of dictating machines by students who feel too conconspicuous in a quiet classroom.

no changes until the new program of use of dictation equipment can be ascertained.

X. Question: How do you judge the textbooks, materials of the program?

Response: Math: Good 6 Fair 2 Poor 0

English: Good 0 Fair 3 Poor 0

XI. Question: What do you think of the present ACT placement examination?

Response: (a) accurate 1

(b) fairly accurate 8

(c) inaccurate 1

XII. Question: List the criteria you feel that should be used to test the success or failure of the program:

Rosponses: grades in subsequent Math and English courses (8)

G.P.A.

student opinion

the number of students who complete the General Studies program (2)

a comparison of pre- and post- test scores (2)

holding power

XIII. Question: Are those General Studies graduates that you have had in your regular college courses at a much lower level than the average non-General Studies student?

It is thought by all who answered the questionnaire that this question could not be answered as the General

Studies student is not identified in later regular college courses.

XIV. Question: Do you think the amount of time for the Application Laboratories is:

Responses: too long 1

just right 7

too short 0

XV. Question: Do you think that placement into the program, with low ACT score, should be optional?

Response: yes 4

no 5

XVI. Question: Other comments

Responses: I have no reservations concerning the benefit of the program to the student who has been away from mathematics for many extended time period. However, I do have reservations in most of the other cases.

Many students in 100 level courses should have been placed in the General Studies program instead. Probably the ACT placement level are too low and we should be more selective in the 100 level courses.

Although this report has shed some light in its description and evaluation, there are still many areas to investigate. Many of the questions that this writer has asked in this report could be answered by following the recommendations that will be stated later.

In his most recent study, Roueche[5] summarizes the little research that has been done on the remedial program in the junior and community college.

Two points that he makes, and he has made these in his previous writings, and also points that seem to summarize the present state of remedial programs in the community college, are

(1) "The large majority of students who enroll in remedial courses fail to complete those courses satisfactorily and are doomed to failure or forced to terminate their education."

(2) "Research on developmental programs is virtually non-existant". Also, "the programs are too recent in origin for a body of research to be available."

Recommendations:

1. Continue to evaluate this remedial program. In particular, evaluate the subsequent course success at the end of the Spring 69 semester of those General Studies students that went through the program as it exists today.
2. Permit a retest prior to fall registration for those students who challenge their score on the ACT examination and who may have taken it less seriously than what was expected.
3. Survey, by mail, all students who have been in the General Studies program to determine their views on the program and their reasons for these views. This could be quite important, especially the views of the students who have withdrawn from the college.
4. Permit those students who are marginal in their ACT scores, just below the established cut-off scores, to enroll in the regular college courses with the provision that they must enroll in the P.M.L.L. for some remedial help.
5. Allow those students who do not even classify in the marginal group

to enroll in the General Studies courses and if marked progress and achievement is noted within two weeks, to enroll in the regular courses and have the same requirement as the marginal group.

6. Evaluate the programmed materials used in the General Studies English Program and the equipment of the General Studies Writing Laboratory. Require several of the regular English classes to use these materials and to attend the application and writing laboratories supplementary to their regular class. Pre- and post- test analysis could then be done.
7. Have the college institute a study on the status of the placement criteria and level used for the five courses mentioned.
8. Have the mathematics department create and test a mathematics placement examination to be used by the guidance personnel to further validate the ACT math scores.
9. Test the next group of freshmen, both pre- and post- and remedial vs. non-remedial on motivation and attitude.
10. Devise a record-keeping and semester-by-semester analysis of these remedial and near-remedial students for the computer, so that pertinent information can get obtained quickly and accurately.

(1) Roueche, John E., The Junior College Remedial Program, Junior College Research Review, Volume 2, Number 3, Clearinghouse for Junior College Information.

(2) Roueche, John E., Boggs, John R., Entrance and Placement Testing, Junior College Research Review, Volume 2, Number 5.

(3) '67 '68, Using ACT on Campus, American College Testing Program, Inc.

(4) ACT Technical Report, 1965, edition, American College Testing Program, Inc. 1965.

(5) Roueche, Salvage, Redirection, or Custody? Remedial Education in the Community Junior College, Monograph Series, ERIC Clearinghouse for J. C. Information, 1968.

Appendix

1. The General Studies Curriculum
2. The General Studies Writing Laboratory Policy and Procedures
3. ACT - Final Grade Frequency Distribution of Math 301.
4. ACT - Final Grade Frequency Distribution of English 301.
5. ACT - Final Grade Frequency Distribution of English 101.
6. ACT - Final Grade Frequency Distribution of Math 101.
7. ACT - Final Grade Frequency Distribution of Math 120.
8. Course Descriptions

   English 301

   English 101

   Math 301

   Math 401

   Math 101

   Math 120
9. ACT Examination - Form 9A

(3) Math 301: ACT Score vs. final grade in course.

ACT Math Score	A	B	C	D	F	W
28	1	0	0	0	0	0
27	0	0	0	0	0	0
26	0	0	0	0	0	0
25	1	0	0	0	0	0
24	1	2	1	0	0	0
23	1	4	1	0	1	0
22	4	2	4	0	2	0
21	1	2	0	1	0	0
20	1	5	3	1	1	0
19	1	4	1	1	1	1
18	3	6	9	6	5	3
17	1	2	7	1	2	0
16	3	3	6	2	3	1
15	1	6	9	5	2	0
14	0	4	10	12	2	0
13	1	2	7	4	3	0
12	1	2	5	14	5	0
11	1	0	2	6	2	0
10	0	2	7	6	1	0
9	0	0	0	0	0	0
8	0	0	1	0	0	0
7	0	0	3	2	1	1
6	0	0	0	0	0	0
5	1	0	1	4	0	0
4	0	0	0	0	0	0
3	0	0	0	0	0	0
2	0	0	2	1	0	1
1	0	0	1	1	2	0

(4) English 301: ACT score vs. final grade in course.

ACT Score	A	B	C	D	F	W
27	0	0	0	0	0	0
26	0	0	0	0	0	0
25	0	0	1	0	0	0
24	0	1	0	0	0	0
23	1	1	0	0	0	0
22	0	0	0	0	0	0
21	1	2	1	0	2	0
20	2	2	4	0	1	0
19	1	1	2	1	2	0
18	0	3	11	3	1	2
17	3	2	9	2	3	2
16	0	6	5	3	0	2
15	1	8	10	9	2	2
14	2	5	15	4	3	0
13	0	2	11	4	2	1
12	0	3	12	2	1	0
11	0	0	6	5	0	1
10	0	3	1	1	0	0
9	0	0	2	0	0	0
8	0	0	1	1	0	0
7	0	0	3	0	0	0
6	0	0	2	1	0	0
5	0	0	0	0	0	0
4	0	0	0	0	0	0

(5) English I: ACT score vs. final course grade.

ACT Score	A	B	C	D	F	W
29	0	0	0	0	1	0
28	0	1	0	0	1	0
27	4	0	0	0	0	0
26	2	3	0	0	0	0
25	5	2	1	1	3	0
24	4	5	5	4	1	0
23	4	9	10	2	3	1
22	5	11	16	10	5	4
21	1	8	23	12	13	1
20	5	8	22	16	13	0
19	3	13	21	15	11	3
18	1	6	23	9	15	3
17	3	7	17	11	8	1
16	0	1	10	8	9	4
15	1	2	20	14	9	1
14	0	0	4	6	10	4
13	0	2	4	4	2	0
12	0	0	4	10	3	0
11	0	1	2	5	3	1
10	0	1	0	2	0	1
9	0	0	2	1	4	0
8	0	0	1	2	3	0
7	0	0	0	0	3	1
6	0	0	0	0	0	0
5	0	0	0	0	0	1
4	0	0	0	0	0	0
3	0	0	1	0	0	0
2	0	0	0	0	0	0

College Algebra

(6) Frequency of Final Course Grade by ACT Math Score.

	A	B	C	D	F
34	1	0	0	0	0
33	0	0	0	0	0
32	0	0	0	0	0
31	0	0	0	0	0
30	0	0	0	0	0
29	0	0	0	0	0
28	1	0	1	0	0
27	1	3	0	0	1
26	1	1	1	0	0
25	2	2	1	0	0
24	0	4	2	2	2
23	2	2	4	1	2
22	1	3	6	5	5
21	0	1	2	2	0
20	1	1	4	3	7
19	1	3	0	3	7
18	1	2	2	6	7
17	0	2	1	4	3
16	0	0	0	4	1
15	0	0	2	0	1
14	0	0	0	0	0
13	0	0	2	1	0
12	0	0	0	0	1
11	0	0	0	2	1
10	0	0	0	0	0
9	0	0	0	0	0
8	0	0	0	0	0
7	0	0	0	0	1

Finite Math

(7) Frequency of Final Course Grade by ACT Math Score

	A	B	C	D	F
29	0	0	0	0	0
28	0	0	0	0	0
27	0	2	0	1	0
26	0	0	2	0	0
25	2	1	1	0	0
24	0	5	2	2	1
23	2	1	1	2	2
22	2	3	2	2	2
21	0	0	3	0	1
20	3	1	2	3	4
19	0	2	1	2	2
18	2	4	3	2	4
17	1	1	0	4	2
16	0	1	3	1	0
15	1	2	1	5	3
14	0	0	2	1	0
13	0	0	1	1	2
12	0	1	0	2	1
11	0	0	1	0	0
10	0	0	1	0	0
9	0	0	0	0	0
8	0	0	0	0	0
7	0	0	0	0	0
6	0	0	0	0	0
5	0	0	0	0	0
4	0	0	0	0	0
3	0	0	0	0	0
2	0	0	0	0	1
1	0	0	0	0	1

Math 301 Fundamentals of Math Credits 3

This course is designed for students who do not plan to continue the study of mathematics but does satisfy general education requirements. The course is a review of the fundamental theory and operations of arithmetic and general mathematics. Topics such as systems of numeration, finite mathematical systems, set theory and logic, and introductions to the basic concepts of geometry, probability, and algebra are covered.

Prerequisite - none (3:0)

Math 101 College Algebra Credits 3

Topics covered include sets; factoring; fractions; linear; quadratic and higher degree equations; functions; graphs; exponents; radicals; inequalities; systems of equations; determinants; and complex numbers.

Prerequisite - 1 1/2 units high school algebra (3:0)

Math 401 Technical Math I Credits 3

This is the first of two courses designed for students in technology programs. Students will learn to operate a slide rule and to perform the algebraic operations of addition, multiplication and division. Other topics include factoring, solving linear and quadratic equations, graphical representation of functions, ratio, proportion, and variation as well as logarithms and solving systems of linear equations. Emphasis is placed on applications to practical problems.

Prerequisite - 1 1/2 units of high school algebra (3:0)

Math 120 Finite Mathematics Credits 3

This course is primarily designed for those students majoring in business. Material covered inciudes an introduction to logic, sets, counting, probability theory and linear algebra. The application of mathematics to business principles and procedures is stressed throughout.

Prerequisite - 1 1/2 units of high school algebra (3:0)

English 301 Communications I Credits 3

Instruction is provided to improve the student's speaking, reading, writing, and listening skills. Students explore questions of contemporary concern as these matters are presented in the mass communications media, and speak and write about their reactions to these presentations.

Prerequisite - none (3:0)

English 101 English I Credits 3

A review of the basic English language skills with readings in the modern short story and essay. Students write essays in response to their reading. Emphasis is on organization of ideas.

Prerequisite - none (3:0)